

Utah Department of Transportation Traffic Management Division

December 2017

Monthly Report



2060 South 2760 West Salt Lake City, Utah 84104 801-887-3710 www.udottraffic.utah.gov

Mission of the Traffic Management Division

- To Support UDOT and the Department of Public Safety to Achieve Zero Fatalities.
- To Help Provide Reliable and Efficient Travel Throughout Utah.
- To Provide Useful and Timely Real-time Traffic Information.
- To Work Together with Other Government Agencies to Serve the Public.
- To Provide Excellent Customer Service.

Traffic Operations Center



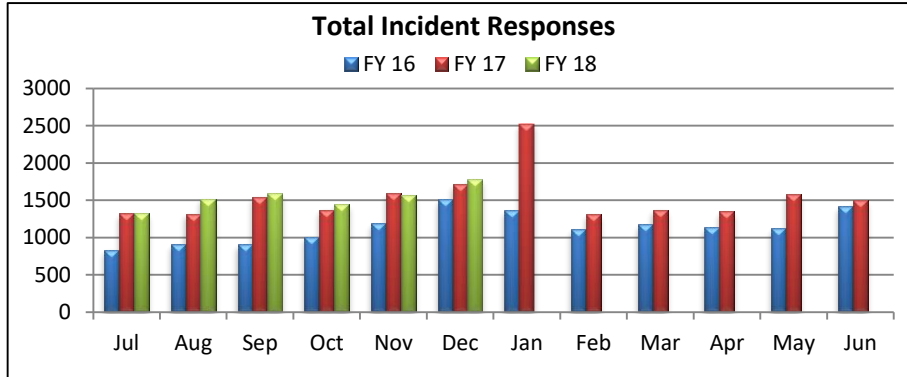
Field Devices Summary

Freeway PTZ Cameras	401
Surface Street PTZ Cameras	543
RWIS & Contracted Weather Cameras	232
Viewable Detection Cameras	38
Total Cameras	1,214
Freeway VMS	100
Surface Street VMS	50
Portable TOC VMS	7
Legacy Trucks Prohibited VMS	21
Variable Speed Limit VMS	15
Chain-Up / Avalanche Warning Signs	25
Total VMS	218
HAR (25 permanent/5 portable)	30
RWIS	110
Ramp Meters	75
TMS	589
Express Lane Plazas	73
Traffic Signals	1,831

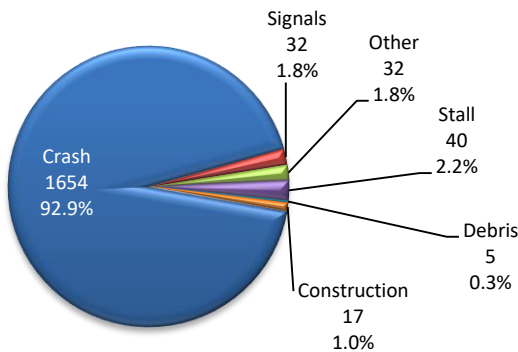
Operations Summary

VMS Messages Displayed	90,464
Signal Timing Work Orders	32
Signal Maintenance Work Orders	147
All New Work Orders	423
Work Orders Closed During the Month	369
Incident Responses by the TOC	1,780
Incident Duration Average Minutes	52
IMT Assists	1,638
Website Visitor Sessions	335,613
511 Calls	30,368
Weather Desk Calls	735
Ask Commuterlink Questions	34
Average Speed AM Peak (07:00-08:00)	66.95
Average Speed PM Peak (17:00-18:00)	60.17
Incidents Using Signal Timing Assistance	260
UDOT Traffic Followers and Re-tweets	647,222
UDOT Traffic App Total Downloads	15,458

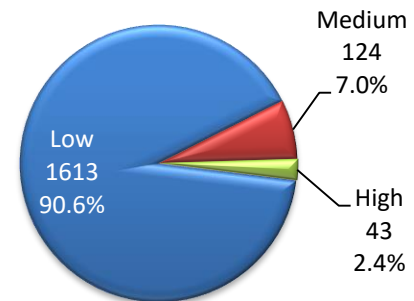
An incident response occurs each time an incident is recorded in the ATMS system. These can be of several types, including crash, construction, debris, stall, congestion, or other. Crashes are separated into three subcategories: property damage, personal injury, and fatal. Each time an incident is created, information is sent to the 511 system, the website, and to the public through email alerts. An incident remains active until it has been completely cleared from the roadway.



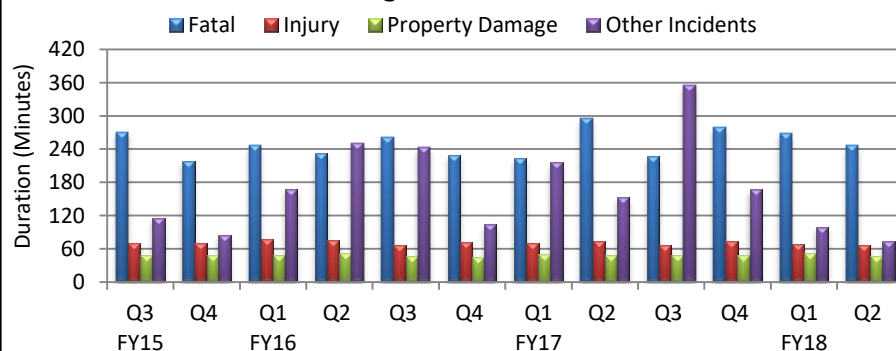
Incidents By Type for December 2017



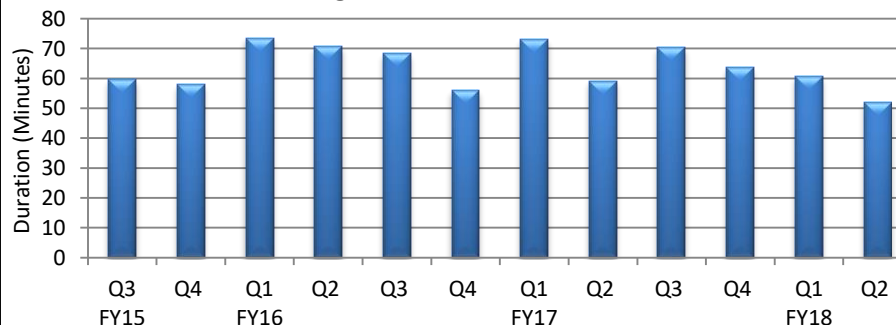
Incidents by Severity for December 2017



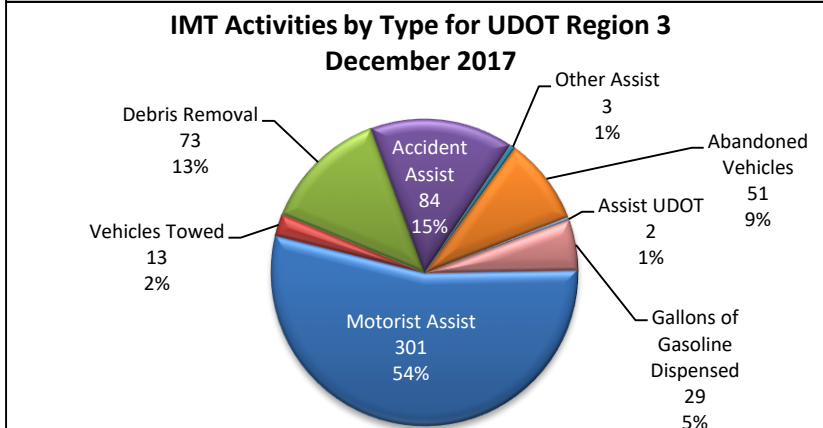
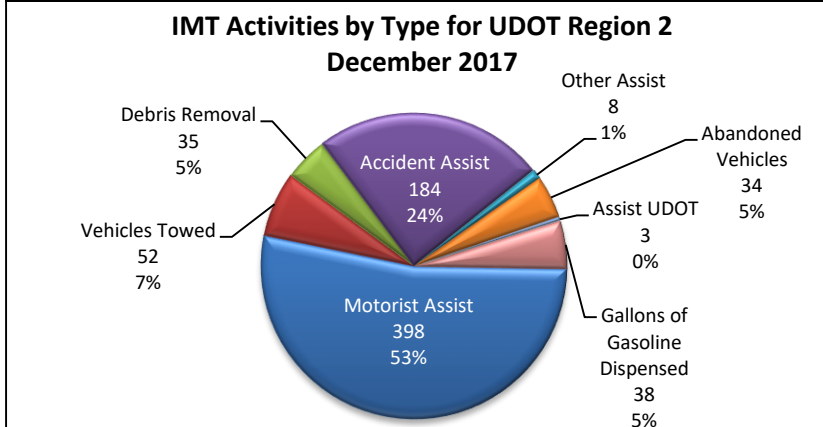
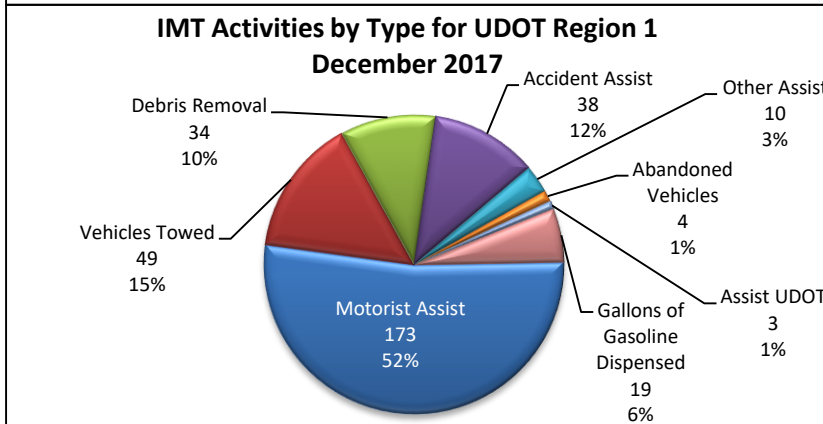
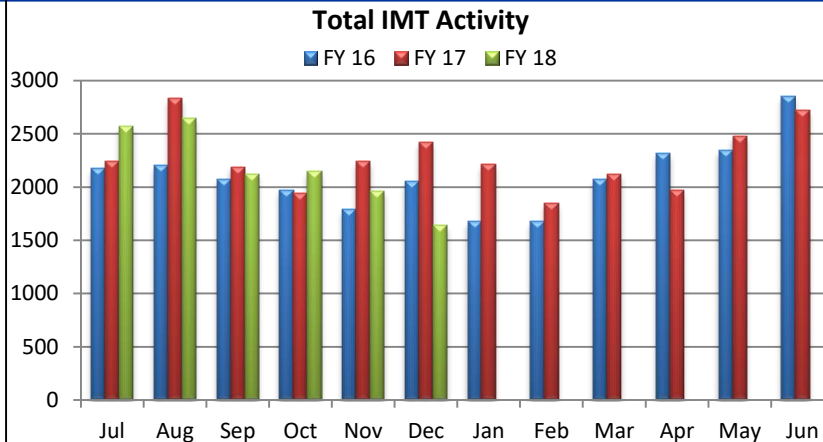
Average Crash Duration



Average Duration of All Incidents



Incident Management Team (IMT) Activities



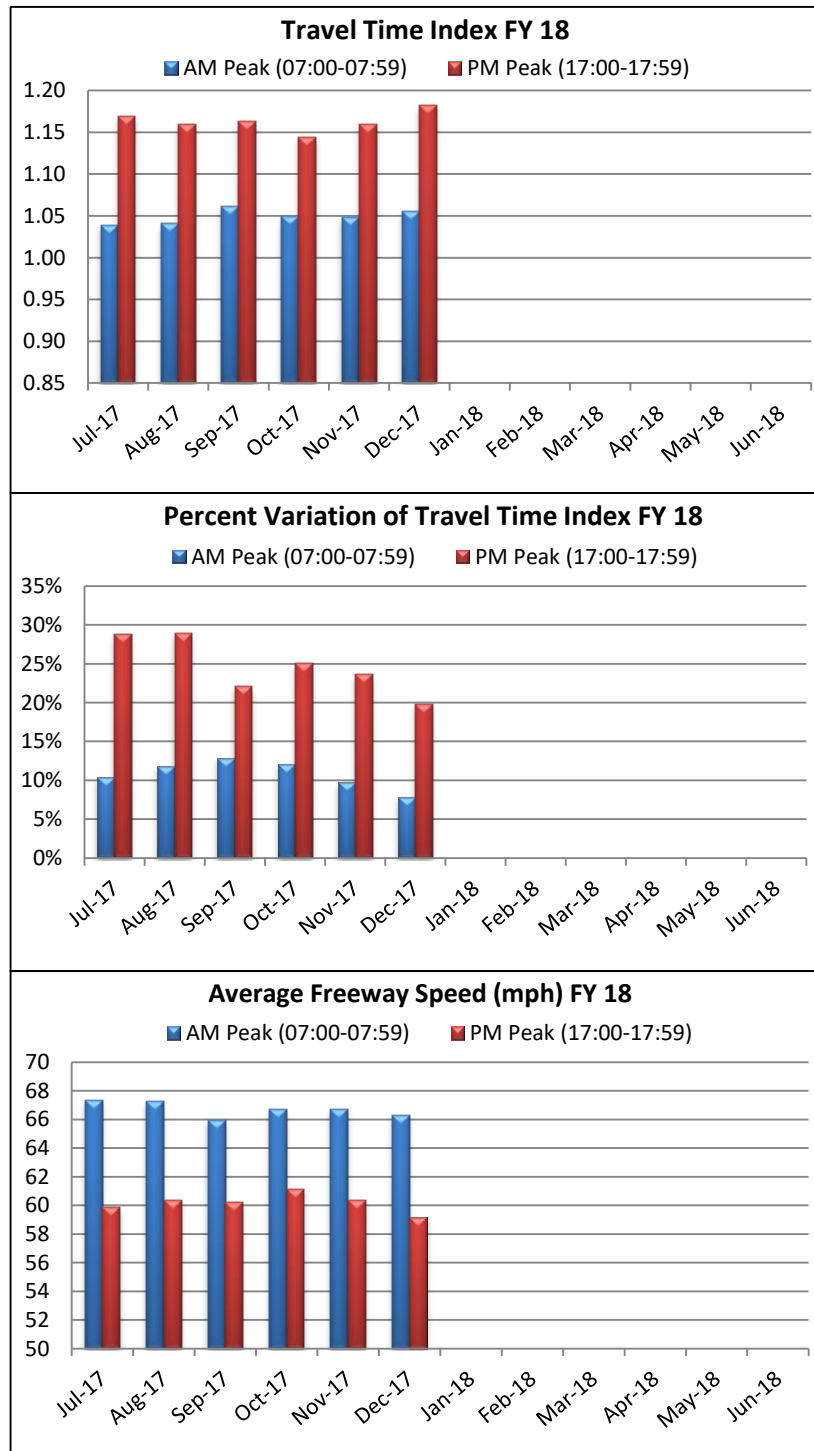
Freeway Traffic Level of Service

Freeway flow measures are taken from the Traffic Monitoring Stations (TMS) located throughout the Wasatch Front. As more TMS sites are installed throughout the state, they will be included in these performance measures.

Travel Time Index: This measure of mobility is based on freeway speeds and is weighted by segment lengths and by the traffic volume. A value of 1.0 represents free-flow speeds. A value of 1.12 indicates that the average vehicle trip takes 12% longer than if that were the only vehicle on the freeway.

Percent Variation of Travel Time Index: The percent variation in the Travel Time Index is a measure of how much the Travel Time Index changes from day-to-day.

Average Freeway Speed: The freeway speed is weighted by volume.



Freeway Traffic Level of Service

Peak Travel Time Index by Segment for December 2017

(+) Direction (NB, EB, Clockwise)

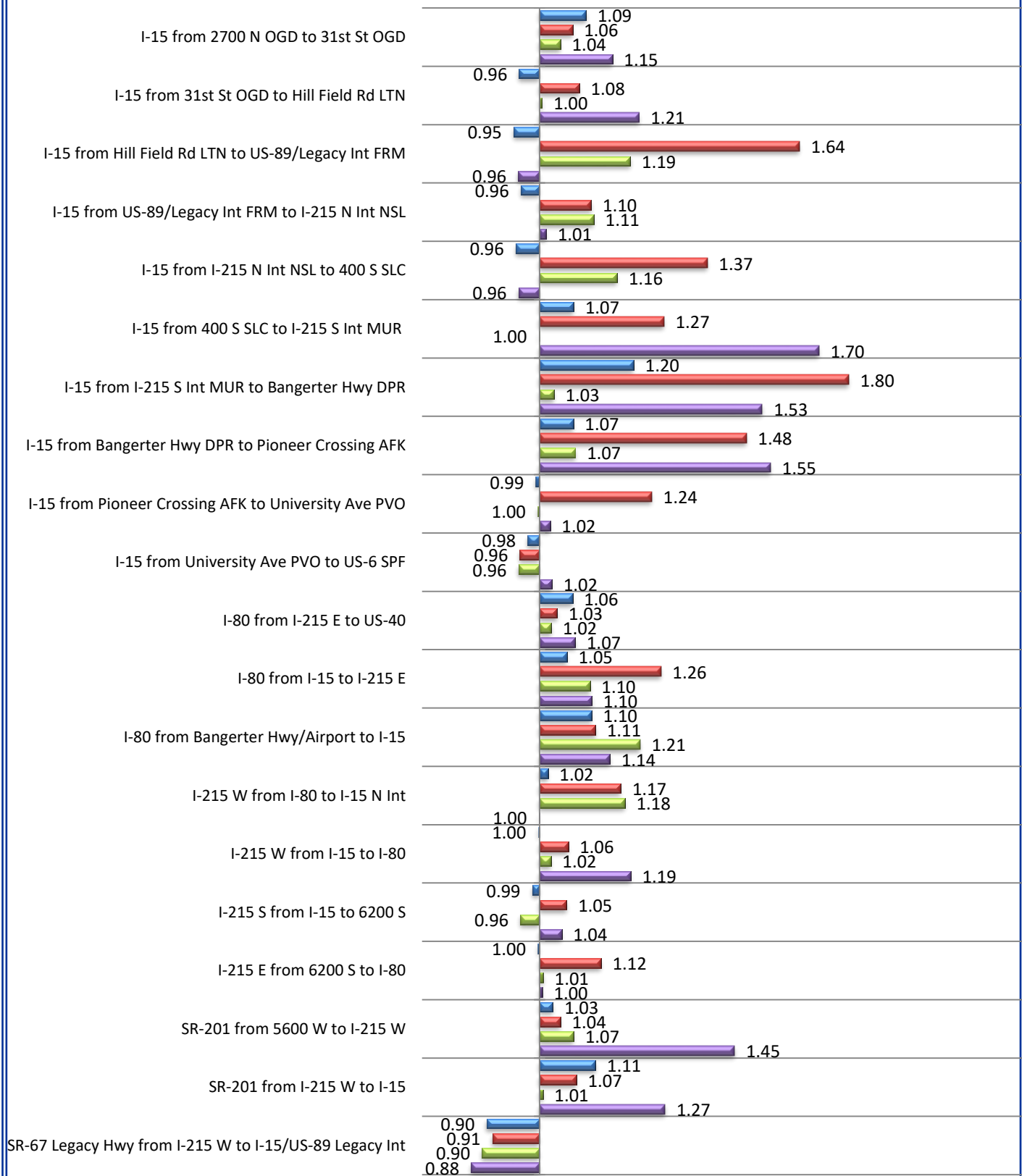
(-) Direction (SB, WB, Counter Clockwise)

■ AM Peak (07:00-07:59)

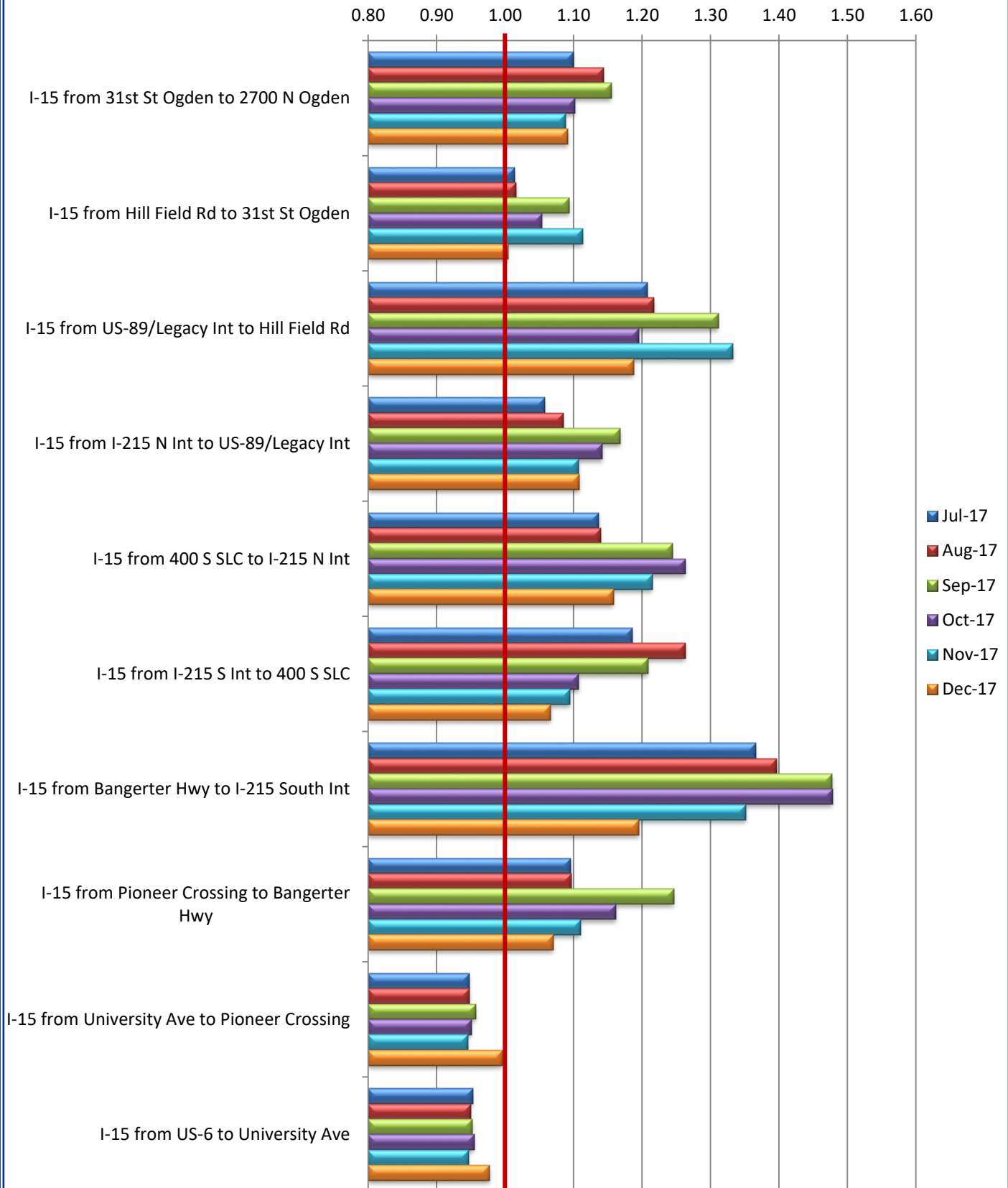
■ PM Peak (17:00-17:59)

■ AM Peak (07:00-07:59)

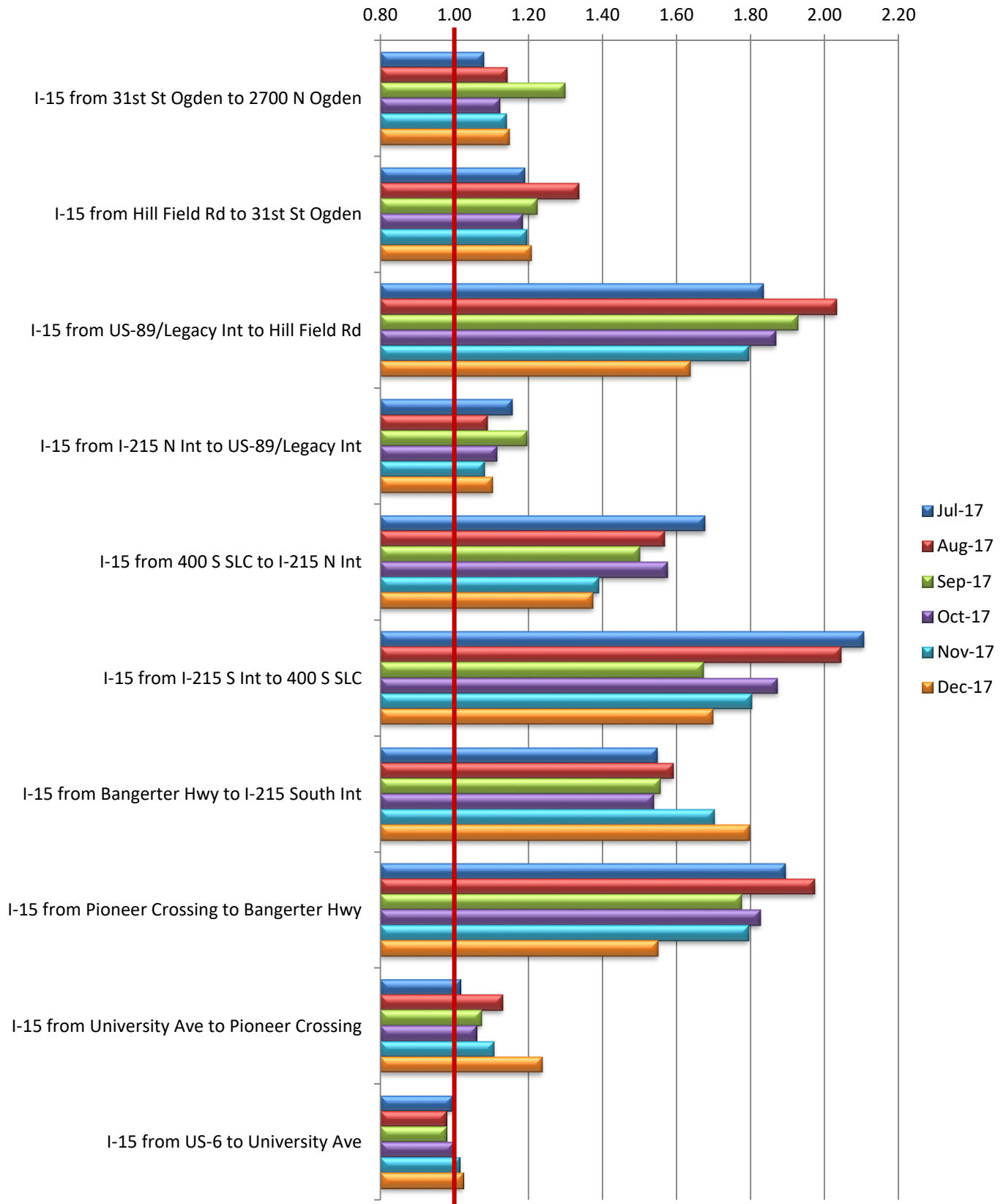
■ PM Peak (17:00-17:59)



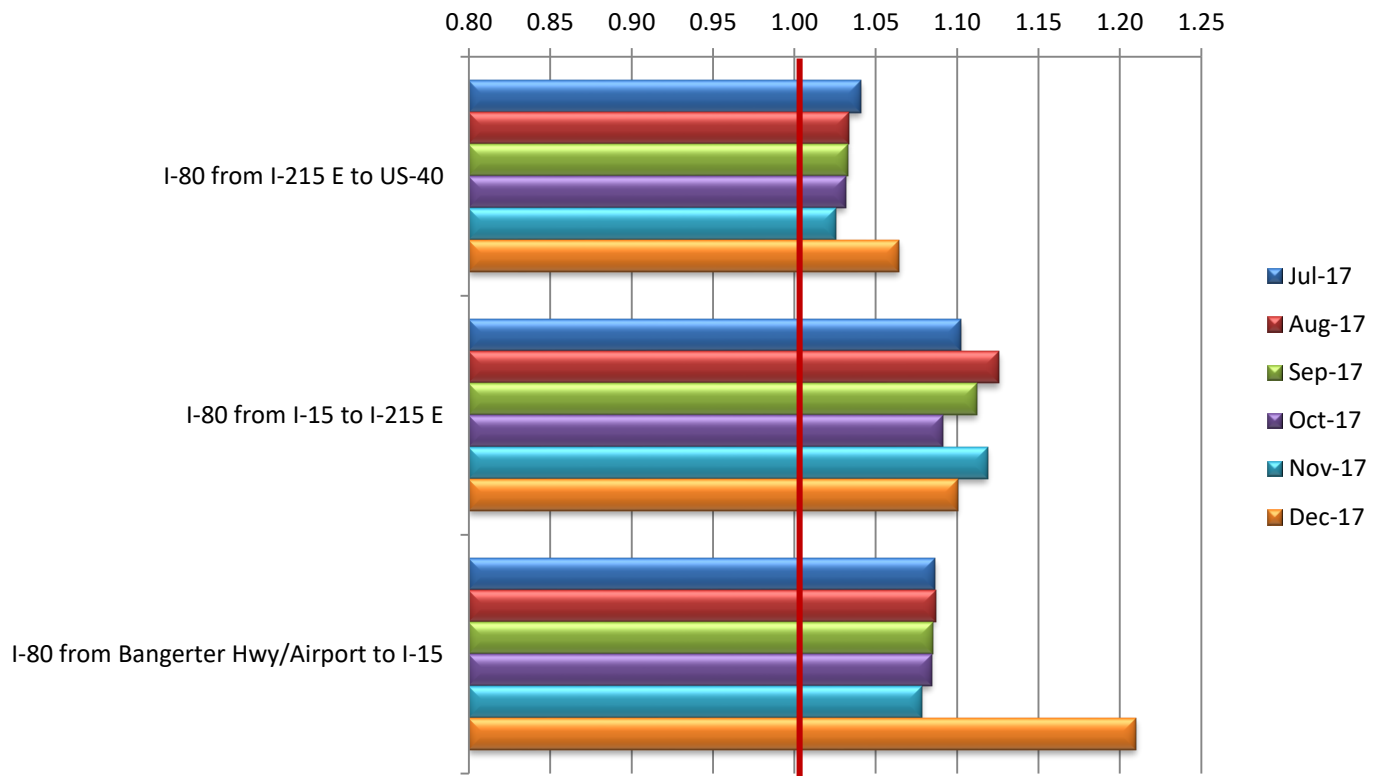
AM Peak Travel Time Index for I-15 FY 18



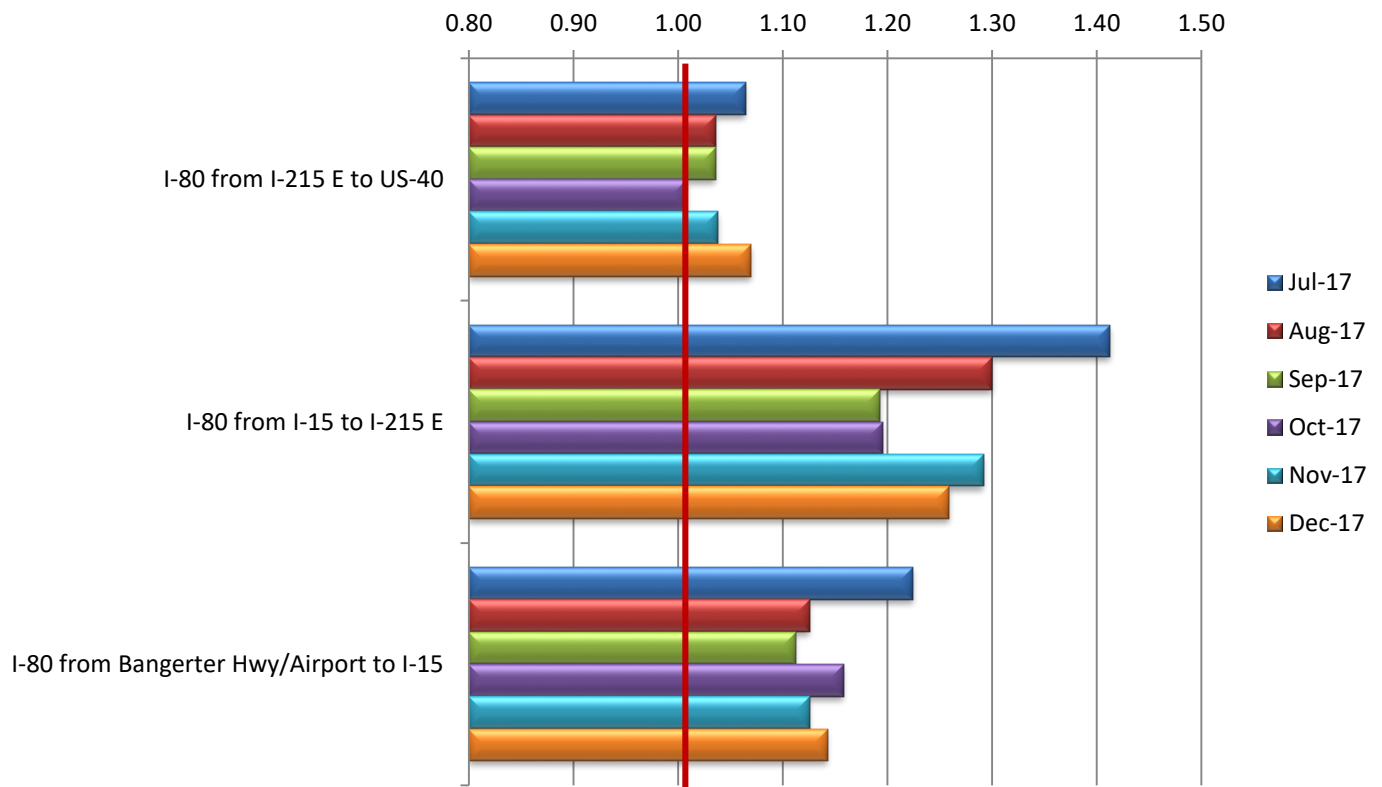
PM Peak Travel Time Index for I-15 FY 18



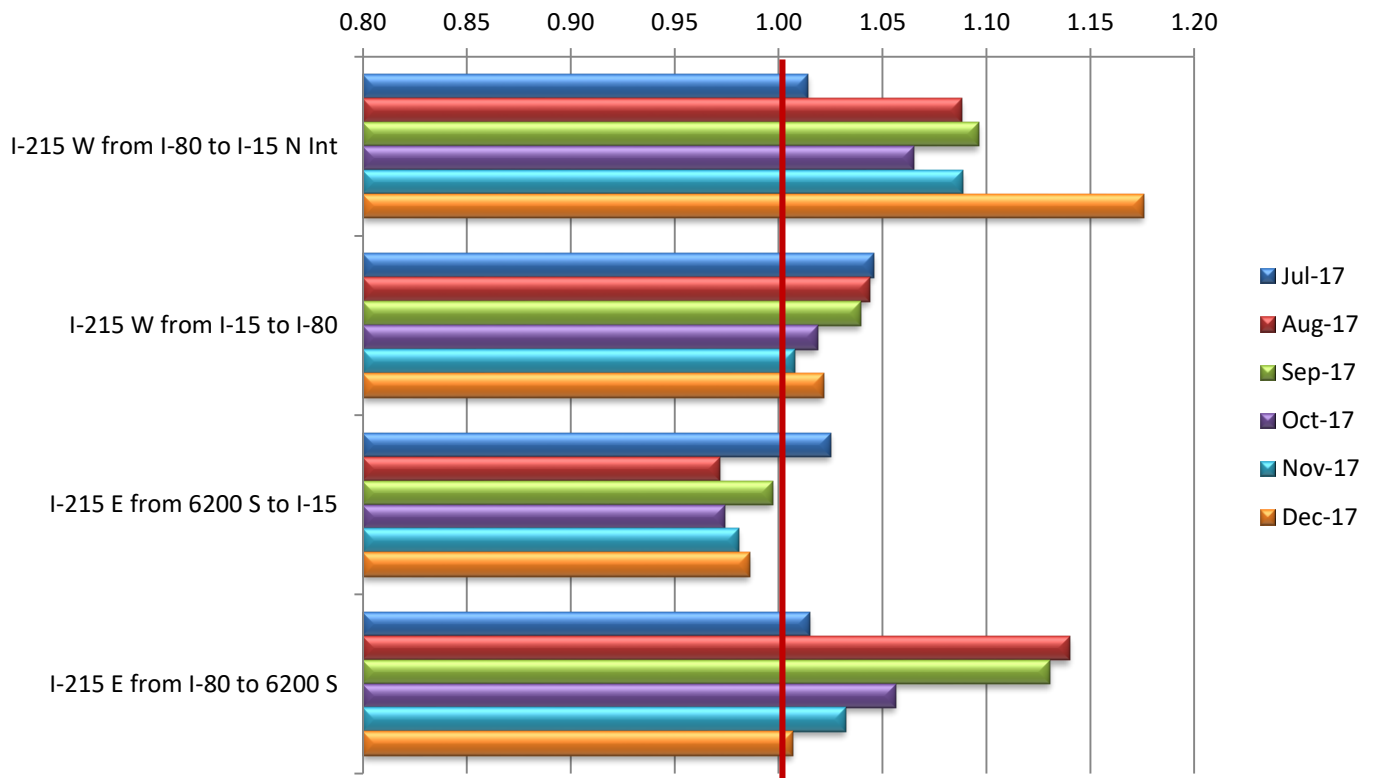
AM Peak Travel Time Index for I-80 FY 18



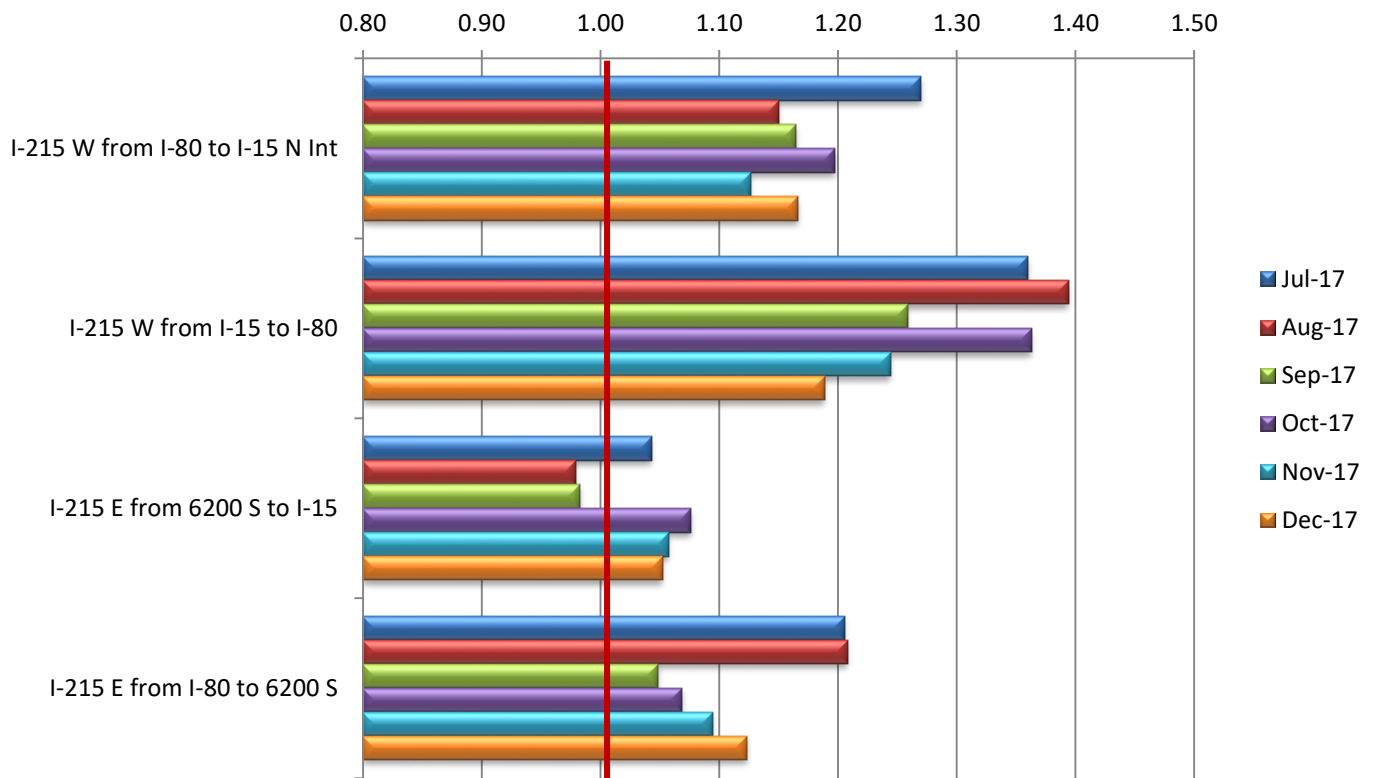
PM Peak Travel Time Index for I-80 FY 18



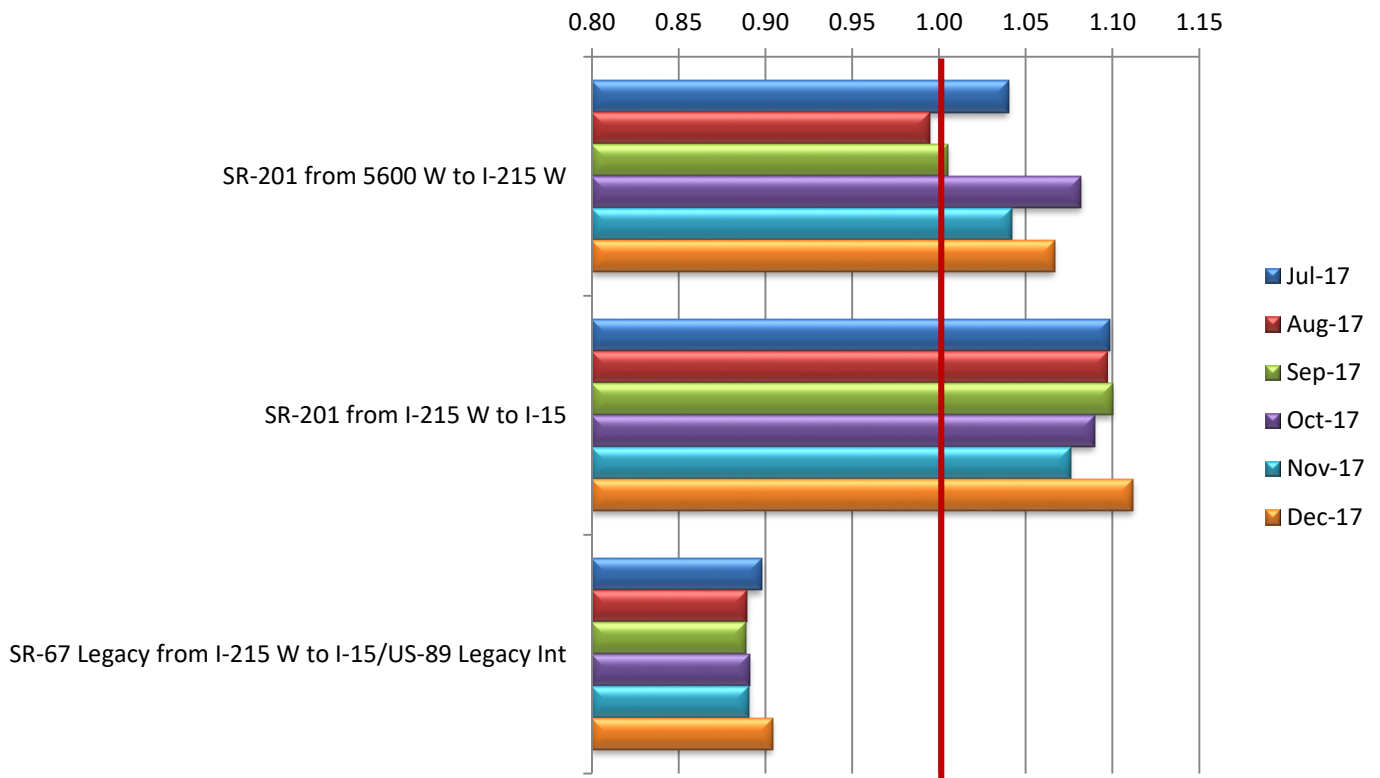
AM Peak Travel Time Index for I-215 FY 18



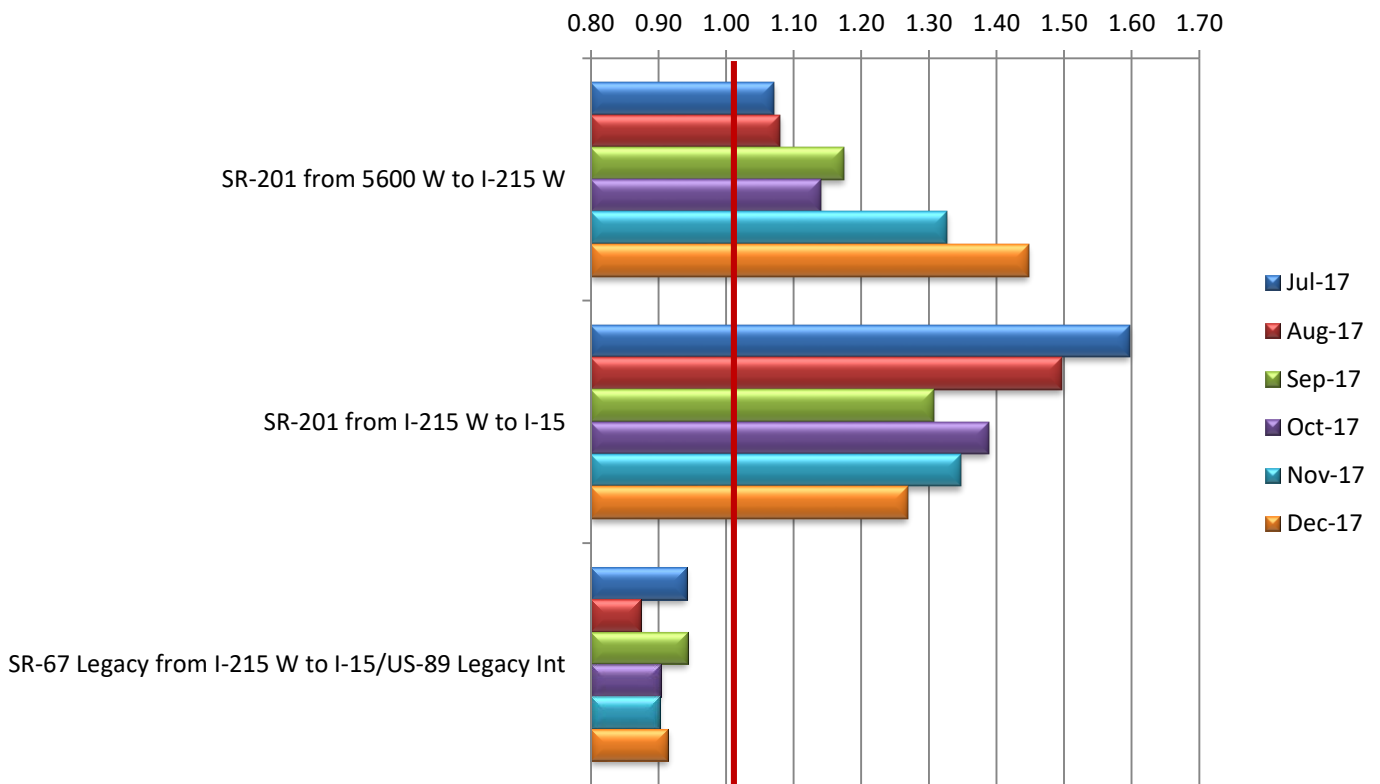
PM Peak Travel Time Index for I-215 FY 18



AM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 18

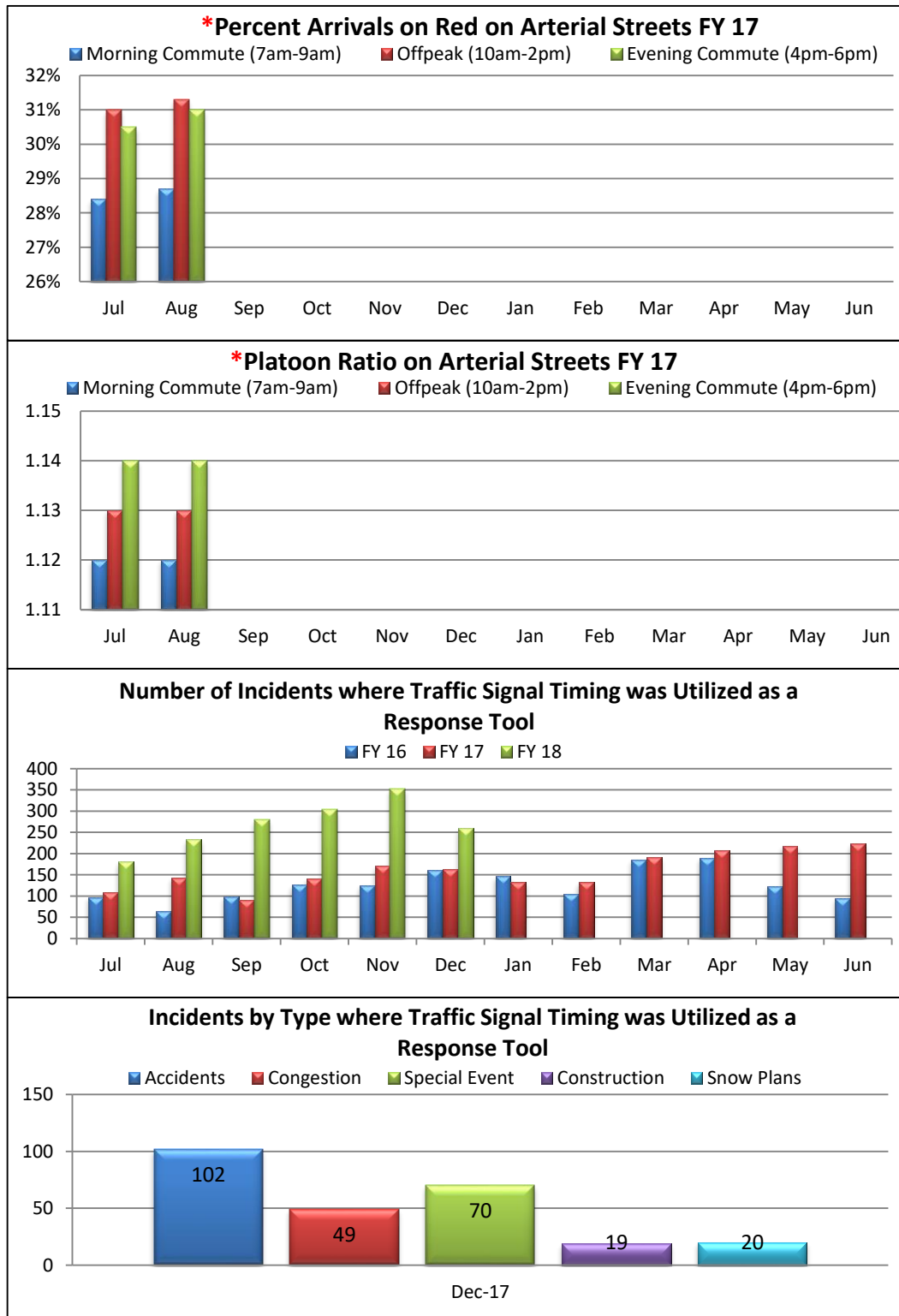


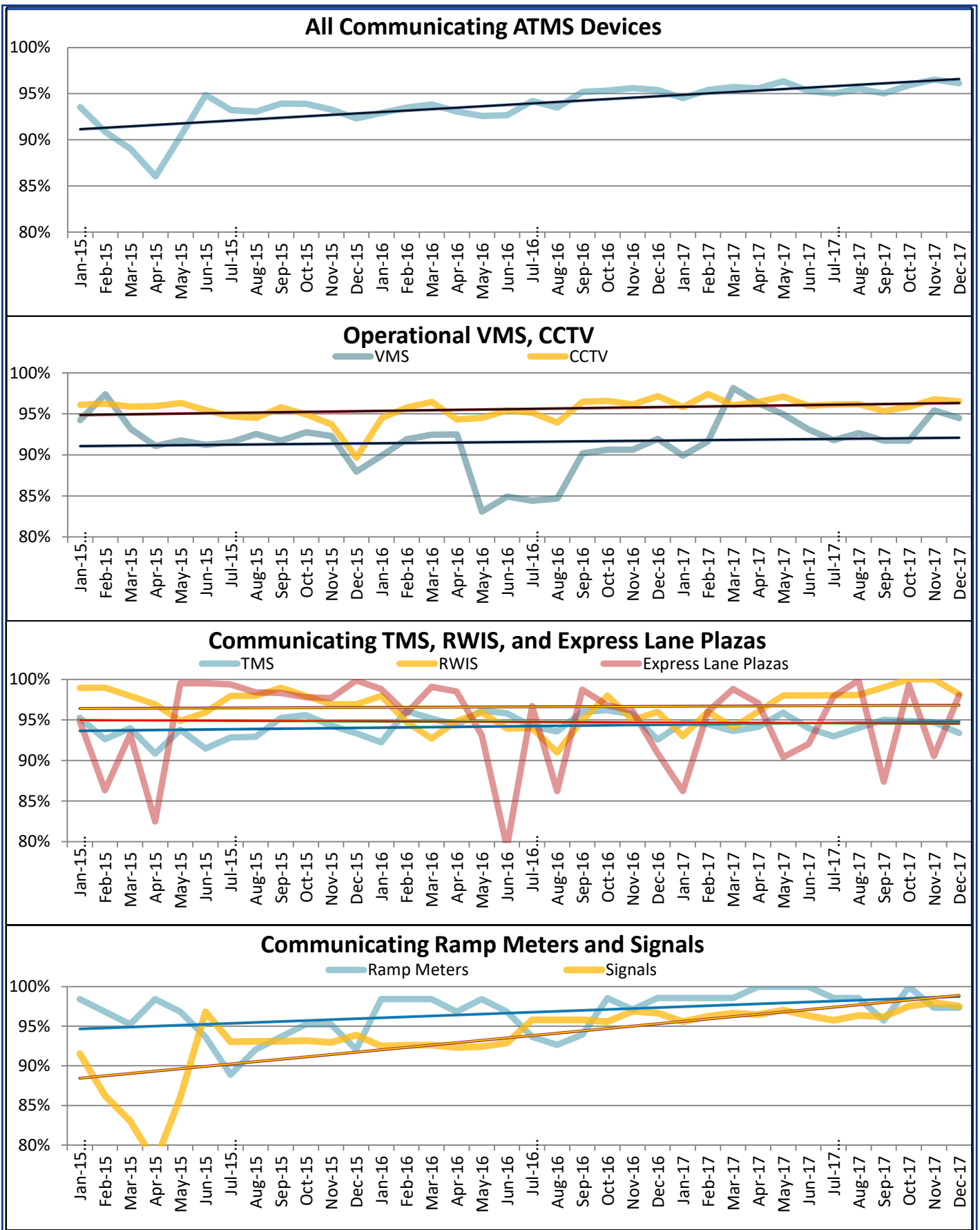
PM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 18

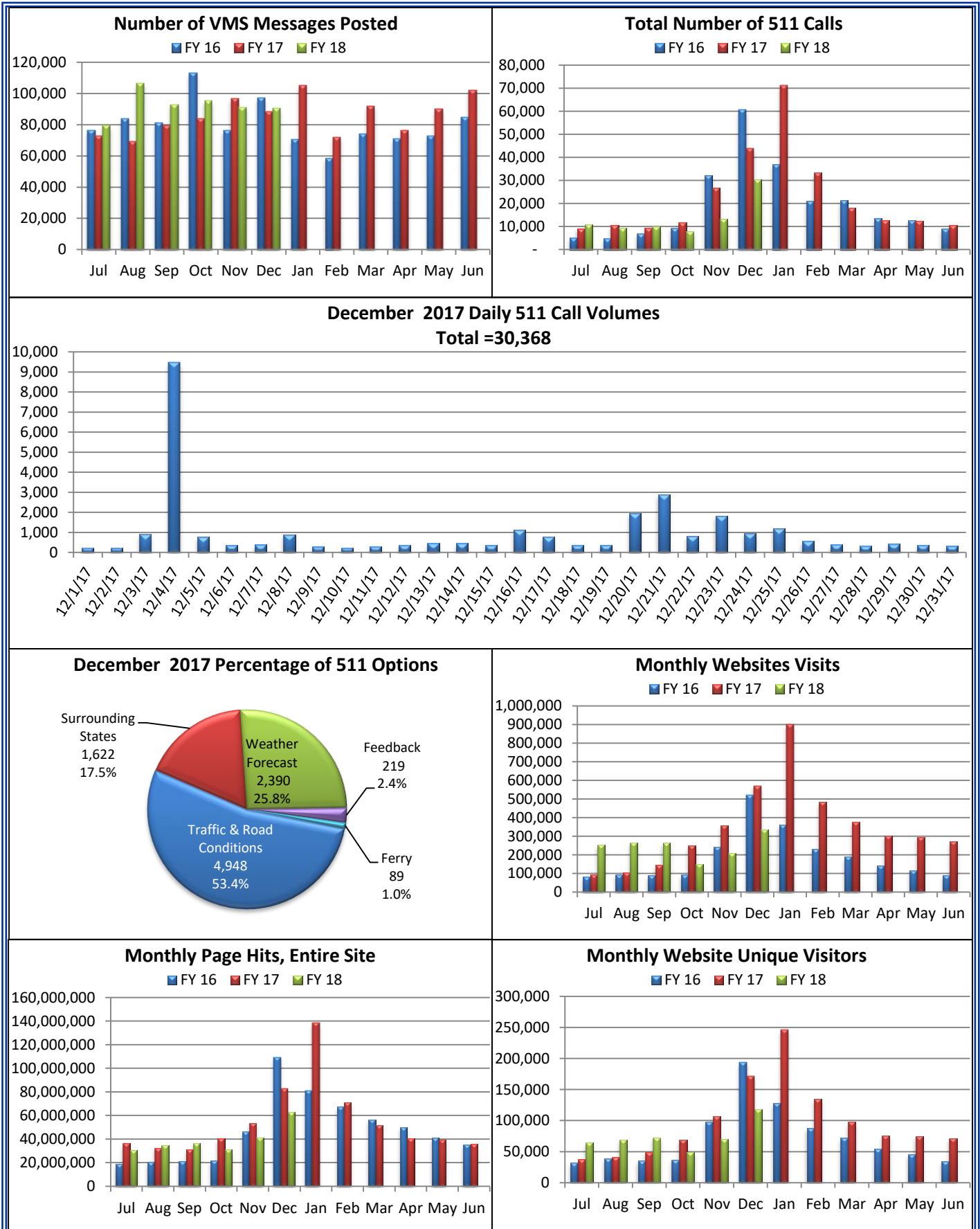


Arterial Traffic Level of Service * No data available since Aug 2016

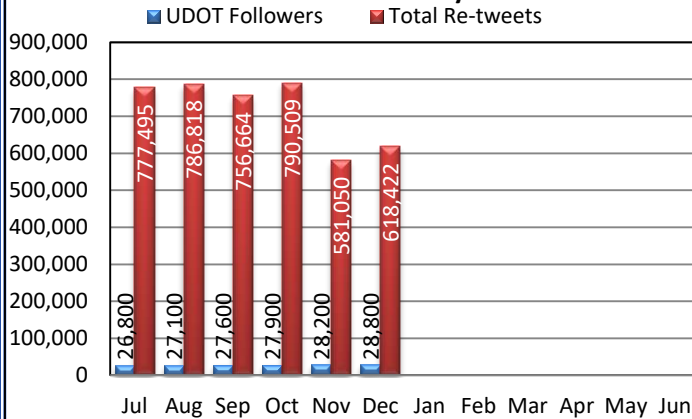
The percent arrival on red along the arterial statistics are generated automatically through the automated traffic signal performance measures, which show real-time and historical functionality at signalized intersections. The system automatically time-stamps when each vehicle arrives at the intersection and then compares the detection time-stamp if the phase was green or red. The percent arrival on red data is averaged over the 24 hours of the day and days in the month. . The lower charts shows the number of incidents where traffic signal timing was modified in order to help traffic flow around closed lanes, or to help relieve excessive congestion.



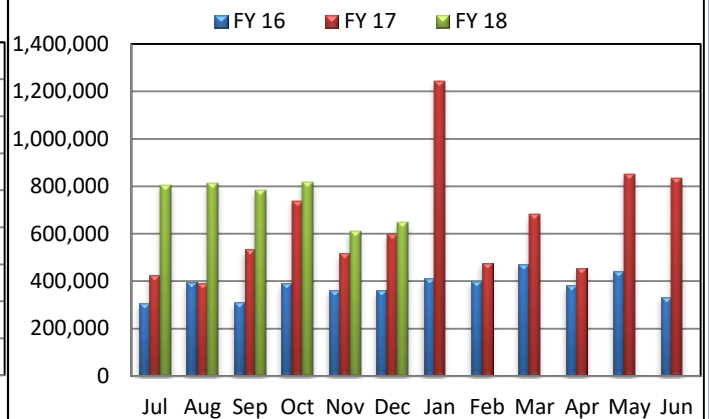




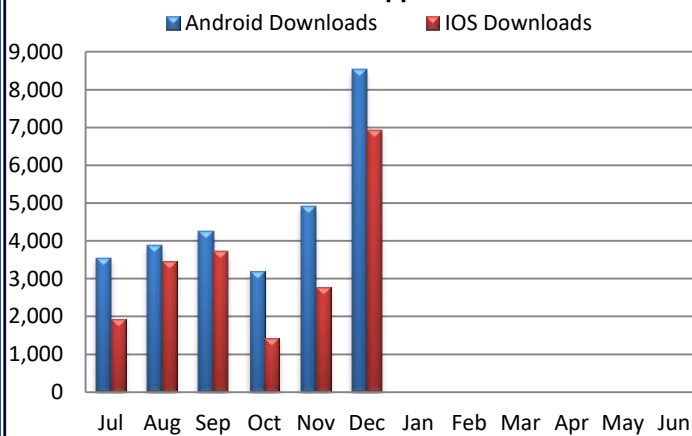
UDOT Traffic Twitter Activity - FY 18



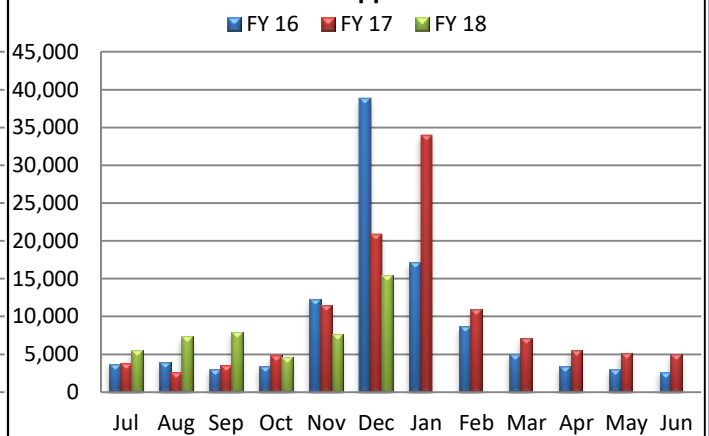
UDOT Traffic Followers and Re-tweets



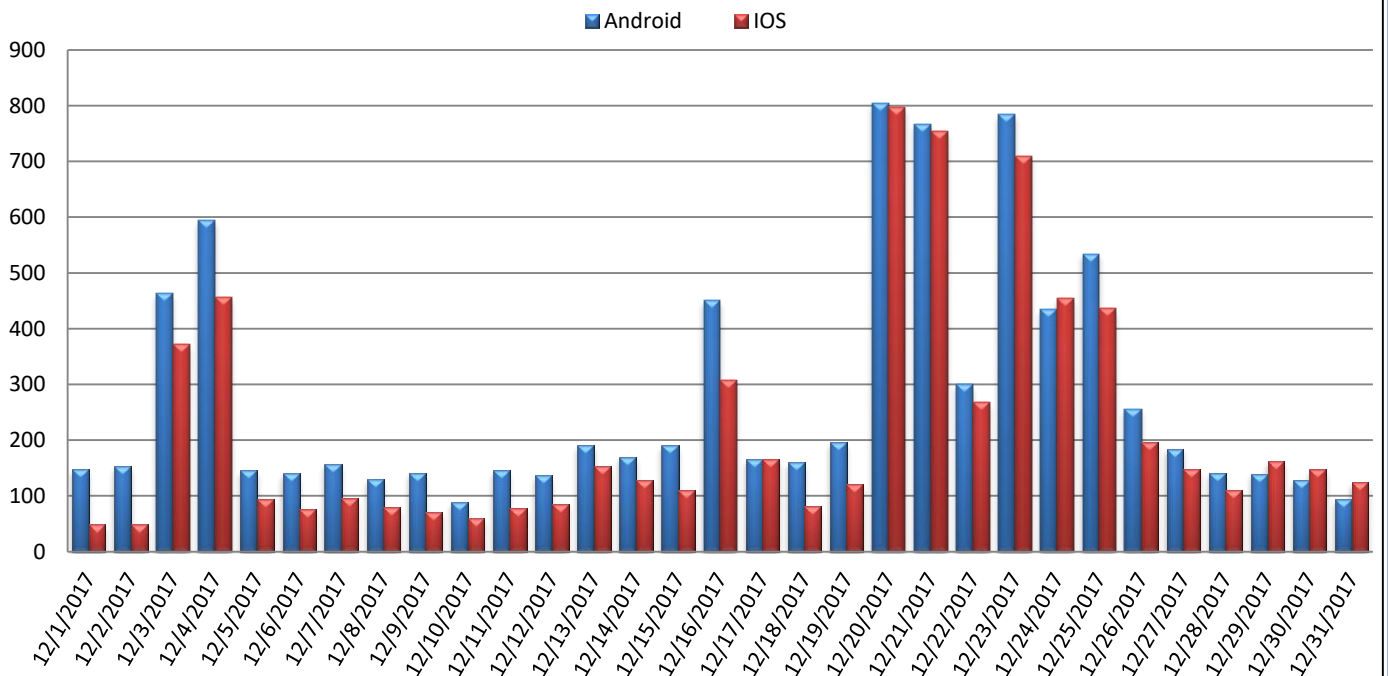
UDOT Traffic App - FY 18



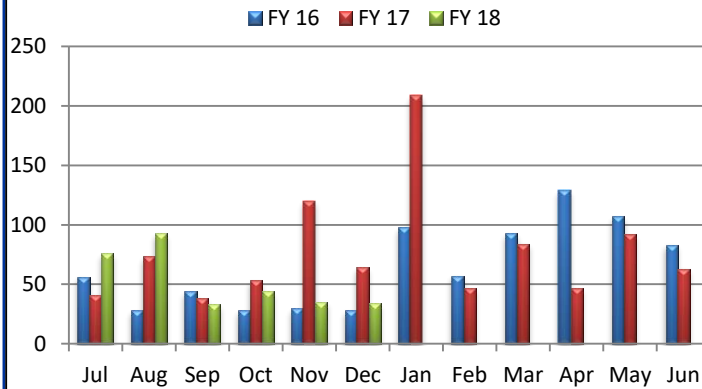
UDOT Traffic App Downloads



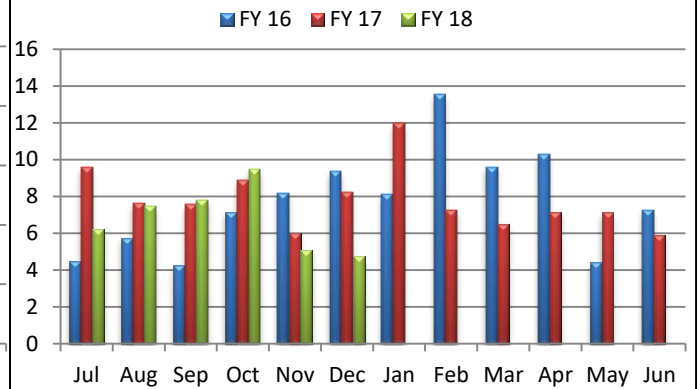
UDOT Traffic App Downloads - December 2017



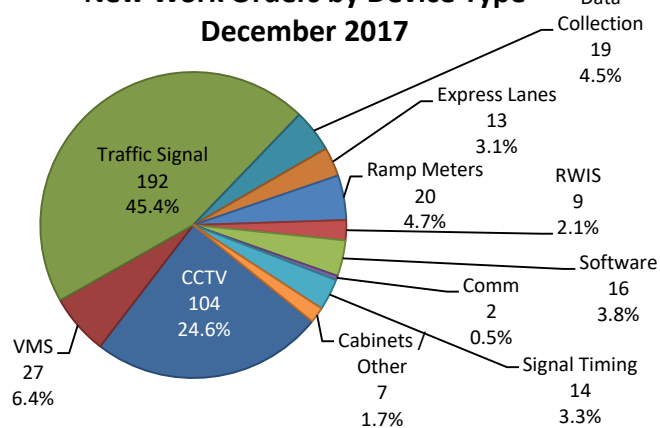
Number of "Ask UDOT Traffic" Questions



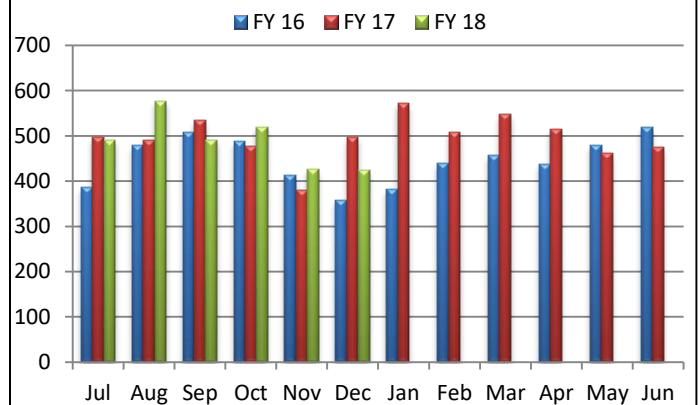
Overall Average Work Order Turnaround Days



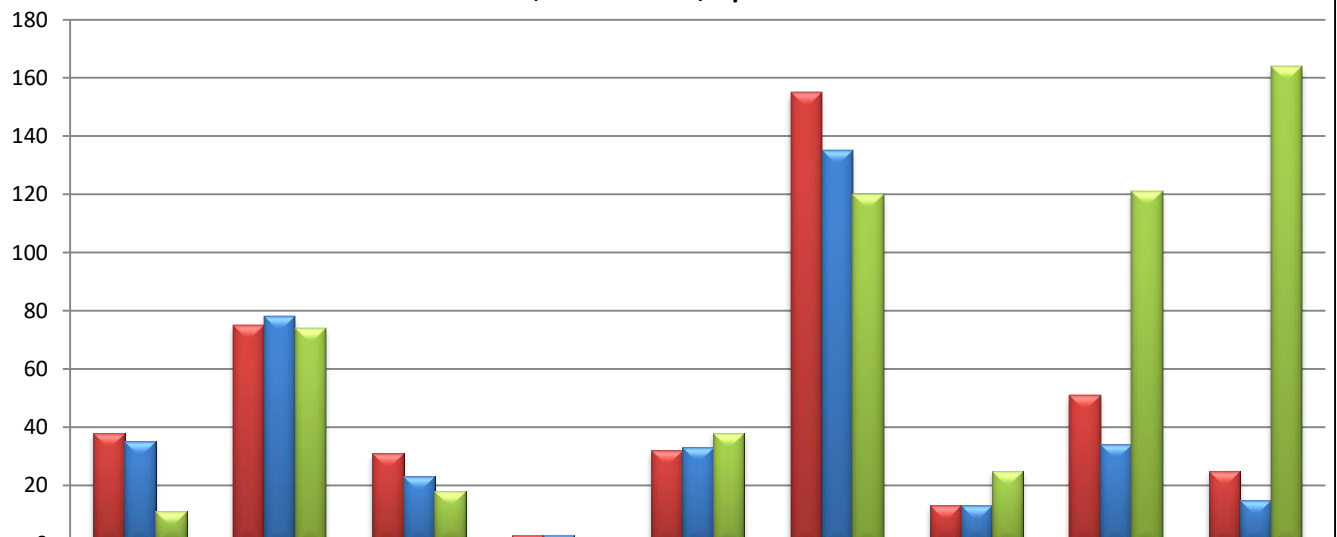
New Work Orders by Device Type December 2017



Number of New Work Orders



Work Order Statistics by Group - December 2017 Total New = 423, Closed = 369, Open = 573



	R1 Signal Maintenance	R2 Signal Maintenance	R3 Signal Maintenance	R4 Signal Maintenance	Signal Timing	ATMS	Express Lanes	ISS	Other / Engineering / Contractor
New	38	75	31	3	32	155	13	51	25
Closed	35	78	23	3	33	135	13	34	15
Open	11	74	18	2	38	120	25	121	164



Control Room

- **Weather:** In December, two winter storm events were supported by the control room. Pre-event VMS plans helped mitigate traffic impacts. Operators implemented chain restrictions and logged high numbers of incidents
- **Events:** Supported high traffic volumes during holidays, including making signal timing adjustments as needed, particularly for shopping areas.
- **Road Work:** The control room supported full closures of SR-201 for overnight work several days in early December
- **Incidents:** 1769 incidents were logged.
- **J-pages:** 467 J-pages were sent.
- **Phones:** 650 Inbound calls, 493 outbound calls: 493

Traveler Information

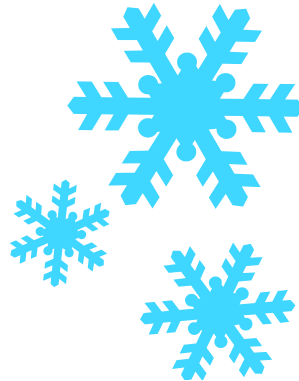
- Attended PIO training in Logan, UT.
- Hosted WTS/UDOT women's mentorship program meeting.
- Facilitated BYU filming for traffic signals.
- Continued work on the UDOT Traffic app/web scoping project.



UDOT WEATHER GROUP

Weather Group Statistics

- 539 – Overall UDOT Weather Interactions
- 99 – Outgoing Weather Alerts
- 14 – National Weather Service collaborations
- 14 – Road Weather Alerts



Climatology

A snowstorm at the beginning of the month preceded a long duration inversion event in the northern Utah valleys before some snow returned in the middle of the month, where Cedar City saw 9.3 inches of snow, and on Christmas Eve for northern Utah, where Davis County saw around 6 inches of snow. Overall, it was mostly warmer and drier than normal statewide. The average temperature at Cedar City was 35.8 °F (normal = 31.4 °F) and measured 0.81" of precipitation (normal=1.12"). The average temperature at Salt Lake International Airport was 33.0 °F (normal = 30.3 °F) and measured 0.78" of precipitation (normal = 1.41") and received 7.7" of snow (normal = 13.2" for December). For the year of 2017, Salt Lake City International Airport observed the 4th warmest average temperature on record behind 2012, 2015, and 2016.

Weather Operations

Two new RWIS sites came online in support of the Snow and Ice Performance Measure in December, funded by Region 2. One is located at the I-215 and I-80 interchange near the airport, and one is along SR-224 at Meadows Drive near Park City.

The I-80 wind protocol analysis was completed and siting of future sites to detect blowing dust and crosswinds was completed.

For the current monthly climate outlook, please visit:

<http://www.nw-weather.net/UDOTMonthlyOutlook.pdf>

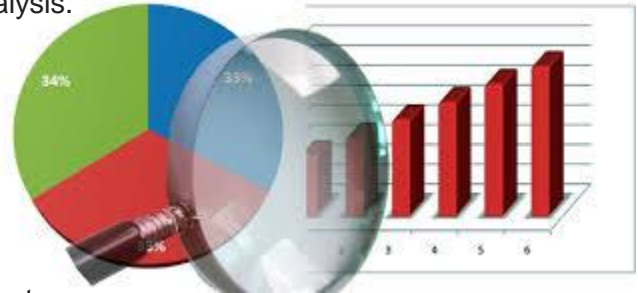
For the current seasonal outlook, please visit:

<http://www.nw-weather.net/UDOTSeasonalOutlook.pdf>



TRAFFIC OPERATIONS, ANALYSIS & REPORTING

- I-15; 400 N, SLC to 2600 S, Woods Cross analysis.
- I-15 SB lane gain project selection.
- TSMO business case.
- Congestion reporting.
- I-215; 4100 South to 4700 South project support.
- Life on State.
- Raised median guidelines working group.
- I-84/US-89 interchange analysis.
- I-15 Pleasant Grove Boulevard analysis.
- R4 ATMS calibration.
- Davis County Express Lanes expansion.
- South Davis BRT.
- Region 3 long range plan update.
- 900 South interchange modifications in Salt Lake City.
- Point of the Mountain advisory group.
- Highland drive I-215 interchange analysis.



TRAFFIC SIGNAL OPERATIONS

Region 1

- Installed left turn phasing at 24th & Washington, 1800 North & SR-126, and 2nd & Washington.
- Turned on new traffic signal at 3000 West & SR-193.



Region 2

- Retimed SR-36 in Tooele County.
- Revised the Flex Lanes operational policy and moved up the PM peak start and end times by 30 minutes.

Region 3

- Turned on a new traffic signal at Redwood Road & Market Street in Saratoga Springs.
- Turned on a new traffic signal at SR-77 (400 S. & 1200 W.) in Springville.
- Replaced the EB mast arm and installed an EB protected only left turn phase and WB near side heads at SR-74 & 1120 N. in American Fork.
- Installed EB & WB flashing yellow arrows at Pioneer Crossing & 1100 W. in Lehi.
- Replaced the EB mast arm and pole and installed EB & WB flashing yellow arrows at State Street & 300 W. in Lehi.
- Installed a 5-section signal head for left turn phasing EB & WB at 400 N. & Main Street in Spanish Fork.
- Installed NB protected only left turn phasing and traffic signal near side heads at SR-92 & 1200 W. in Lehi.
- Installed blank out signs and other safety improvements for RR preemption at 1600 N. & Geneva Road in Orem.
- Replaced three street light poles and one pedestrian pole that were knocked down in Orem, Provo, and Payson.
- Continued timing support for traffic signals through the BRT project.
- Hired a new R3 Signal Supervisor.



Region 4

- Installed temp detection, temp signal heads, and timing plans along Bluff Street in St. George in support of the N. Bluff Street widening project.
- Turned on the SR-12 & US-89 warning system.

ATMS MAINTENANCE

Electronics Field Team

- Snow removal and salting of all sidewalks and entries into the TOC.
- Worked with the weather department on electrical inspections for commercial power to a weather station in Park City.
- Completed final electrical inspections for two power pedestals located on I-80 EB @ 1900 E. and 6450 S @ 2400 East.
- Completed 21 LFOTs.
- Completed five inspections for Region 2.
- Completed ramp metering knockdown for Region 3.
- Worked with the Redline rep to realign the radios for seven sites.
- Worked with the Fiber Team on I-15 NB @ 700 S / SR-193 MP 334.08 (CFD) to reestablish communication.

The Field Team closed 95 work orders in the month of December.

Electronics Lab Team

- Inclusive of Digi Terminal Servers, Traffic Signal Controllers, 2070 Controllers, Wireless Radio, Wavetronix Radar and CCTV a total of 52 devices were tested/repared.
- One traffic signal cabinet was setup, programmed, burned in and disbursed for 11400 S Redwood Road.
- Two traffic signal cabinets were set up as Region 2 spares and are awaiting pick up.
- Cleaned and realigned VSL signs on I-80 MM 136.6, MM 136.93 and MM 135.4.

There are 37 open work orders; 18 are on hold for loop replacements. The Electronics Lab closed 19 work orders during the month of December.

Express Lanes Team

- Performed one system drive per week
- Repaired 12 lane controllers.
- Performed PM's on three cabinets.
- Received help from the ATMS Field Team when needed.



The Express Lane Team closed 60 work orders during the month of December.

Region 1

- **Statewide Signal Interconnect (12631):** Substantial completion has been met. Integration continues.
- **SR-37; 5100 W. to SR-108 (13037):** Under construction. In 30 day burn-in.
- **650 N. I-15 Clearfield (11092):** Substantially complete.
- **Sardine Canyon US-89 from Brigham to Wellsville (13744):** Americom Tech and Skyline Electric is the sub. Construction has been placed on hold until spring.
- **I-15; Farr West to Brigham (10491):** Traffic Monitoring Station (TMS) improvements and VMS installation. The VMS has been installed and integrated, under 30 day testing.
- **SR-97 (5500 South) & 4300 West (15446):** In design.
- **SR-108 and 1475 W. (14803):** In design.
- **SR-126 and 6000 S. (15800):** In design.
- **SR-126 and 4800 S. (15801):** In design.
- **5 VMS Region 1 (16041):** In design. PIH scheduled for Feb.



Region 2

- **I-80 Chain up flashers:** New chain up flashers were installed to close a technology gap from the summer signing project to update faded signs. The new flasher system will operate wirelessly in order to be operational for winter storms. Future planning for a complete chain up notification system will improve our notification strategy for travelers heading through Parley's canyon/summit.
- **SR-210 Wasatch Drive – New Traffic Signal:** A new traffic signal was installed to allow for better turning radius and accommodation of bicycle operation.
- **New ATMS connection at Cottonwood Shed 233:** A new UDOT Maintenance Shed was constructed and a new fiber access was installed to bring traffic video into their new offices. Three traffic monitors were installed in the shed to allow improved Situational Awareness of road and traffic conditions for our maintenance crews to plan quicker response and counter-measures for events that diminish traffic flow.

Region 3

- **PIN 10137 - Provo; US-89 (300 S); 100 East to 700 East:** Waiting for Procurement contract- additional micro duct and fiber installation to be done on a separate procurement contract planned for the near future.
- **PIN 10689 - Saratoga Springs; SR-68 Centennial Blvd to Pioneer Crossing:** Project under construction. Contractor will perform Integration work. Final fiber work is being completed.
- **PIN 12158 - Lehi; I-15; Lehi Main St to SR-92:** Working on setting up a Mini TOC for the Technology Corridor offices.
- **PIN 11982 - Saratoga Springs; SR-85 (MVC) SR-73 to 2100 North:** Project in Design.
- **PIN 9994 – US-89; 220 South, Pleasant Grove to 500 East, American Fork:** Project in design. ITS Program Management added funds to this project in July to continue all the way to 220 South in Pleasant Grove.
- **PIN 14983 – Continuous Count Stations (CCS) Interstate/Arterial:** Team met in October and identified potential locations for Utah County count stations. Contractor will provide an estimate of what it will take to connect all of them.
- **PIN 15275 – Saratoga Springs; SR-68 Village Parkway to Grandview:** Pending advertisement.
- **PIN 13421 - Springville; SR-77 (400 S); Spanish Fork Main St. to I-15:** PS&E was held the beginning of August. Advertisement anticipated 2018 construction season.
- **PIN 13668 - Lehi; Main St @ US-89/State St Signal(s):** Project has been re-advertised.
- **PIN 13389 – US-40; Daniels Canyon Passing Lane North of Summit:** Project has been awarded and will construct 2018. This project will add a fiber connection and power to two cameras and an RWIS. ATMS funds were added to this project to close the fiber gap between an existing construction project and this one. With the completion of the project, we will have fiber on US-40 from Heber to Daniel's Summit. The conduit for the fiber was installed by Strata this fall.
- **PIN 10266 - Provo; SR-256; 800 East to University Ave BRT:** Project under construction. Contractor installed two CCTV's.
- **PIN 13244 - Utah County Signal Interconnect:** American Fork. Connect cooperative agreement complete. Fiber installation inspection shows cable was stressed during installation. The damage is within the first 600' on the south end of US-89 in Springville.
- **PIN 13061 - American Fork; US-89 @ Main St./200 East:** Incorrect fiber drop cable (no pre-termination) installation resolved. Notified contractor that the CCTV equipment is available when needed at the TOC.
- **PIN 14909 – Fiber; Vernal to Manila (US-191/SR-44):** Project on hold pending Federal approval of UEN fiber installation.

Region 4

10711 – US-6 Fiber Upgrade Helper to Price: Emery Telephone offered to have Fibertel install CCTV at US-6 @ M.P. 229.82 that was previously pulled from the project. We felt this would be a more efficient way to get resolution. Requested billing breakdown from Hunt.

10783 – SR-18; St. George Blvd to Sunset Blvd: Project kickoff meeting held. It was determined that there will be an active traffic management element needed during the construction that was not identified in the planning phase. The project agreed to bring on an integrator early to accommodate this need. Initiated integration WTO.

11467 – I-15; M.P. 22 to M.P. 28 Climbing Lane: Project in advertisement.

11515 – SR-9; Rockville to Zion National Park: Project under construction.

12780 – I-15; Bingham Rd. to Dixie Drive: Project under construction.

13676 – SR-9; Fiber & Interconnect Hurricane: Project complete.

14277 – I-70: Richfield South to Richfield North: Project complete.

14908 – ITS upgrades Dixie MPO: Concept report being developed.

14912 – US-6/US-191; Helper to Blanding: Integration WTO expired. Generated replacement.

15667 – Region 4 Signal Interconnect: Continuing the evaluation of the signals still not connected to Utah Traffic network outside of the MPO boundary to determine if a concept report is necessary. If it is not, we will move straight to construction.

15815 – Cedar City Signal Lab Connection: Project complete.



ITS Standards and Specifications

- The ATMS Design Manual of Instruction was placed on line and is complete. Future work may include creating a Wiki of the document. HNTB's contract will expire on December 31, 2017. Future Standards work is under consideration.
- Work proceeded on the ATMS Device Inspection Forms by e-mailing them to Construction requesting that they be posted to the web.

ITS Procurement

- The City of Orem called requesting information on UDOT's progress towards purchasing and installing Digital Traffic Surveillance cameras (CCTV). The discussion covered the Hybrid CCTV option. These are able to operate using both analog and digital formats. UDOT has not progressed towards adopting Digital H.264 CCTV due to the problem of decoding multiple formats that feed the Video Wall in the TOC. The City of Orem is able to continue research in this area and determine if Hybrid CCTV will be usable.

Special Projects

- Work continued on the VMS - Project F-15-7(335)290. The Engineer's Site Inspection was held to check the contractors work prior to the Local Field Operations Test. Narwhal was tasked to perform the Integration of the project ATMS devices. The 45 ft. CCTV pole required for I-215 EB at 2300 East had not arrived for installation.
- The mini version of the Tooele County ITS Concept Report was completed.
- WFRC funding applications for the year 2024 were looked at and discussed.
- Attended the PS&E meeting for the Region 2 "Mill and Fill" project on SR 224. It runs from Bear Hollow to Kearns. Peter Jager provided oversight with replacing the loop detection that was in place along the route with non-intrusive detection. RWIS has already removed sensor pucks from the pavement so they are not a concern for this project.





Acronyms

CCTV	Closed Circuit Television	DPS	Department of Public Safety
EIS	Emergency Information System	HAR	Highway Advisory Radio
I2TMS	Integrated Interagency Traffic Management System		
ITS	Intelligent Transportation System	LFOT	Local Field Operations Test
MIC	Manager in Charge	MOT	Maintenance of Traffic
RWIS	Road-Weather Information System	TAC	Technical Advisory Committee
TMD	Traffic Management Division	TMS	Traffic Monitoring Station
TOC	Traffic Operations Center	VMS	Variable Message Sign

***December** is the 12th and final month of the year in the Julian and Gregorian Calendars. It is the seventh and last month to have the length of 31 days. December got its name from the Latin word **decem** (meaning ten) because it was originally the tenth month of the year in the Roman calendar, which began in March. The winter days following December were not included as part of any month. Later, the months of January and February were created out of the monthless period and added to the beginning of the calendar, but December retained its name*

